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The Test of a Man

The test of a man is the fight that he makes,
The force that he puts into his blows;
His ability to stand erect and take
The punishment the enemy bestows.
Anyone can smile when there is nothing to fear
And everything is smiling and gay;
But it takes a man to stand up and cheer
When everything is on the down way.

It isn't the winning you surely know,
Nor the number of battles won,
But how you stood and gave blow for blow,
Until the enemy run.
The fight isn't worth winning unless won on the square,
To use trickery and deceit is but fraud;
The man that is always honest and fair
Will get his share of the applause.

So it's the blows you give and the way that you fight
That determines if you are a man;
It's surely no glory to be in the limelight,
If your victory was only a sham.
Then the test of your mettle and the proof of your worth,
In addition to the blows you deal,
Is the blows you get on the hard old earth,
That shows if your stuff is real.

—Frank M. Johnson.

MONTHLY REVIEW

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EDITORIAL

THE NEWARK CONVENTION

Mr. Secretary and Fellow Members:

You, of course, are looking forward to a big time at the coming Newark Convention. You expect the Newark Branch to make this Convention the best that has ever been held. This is natural, but we cannot do anything unless we have the whole Society back of us. We know that we have every member behind us with a good word, but we wish to have that word backed up with something tangible.

Each member can do his part toward making the Convention a success, and the degree of success will depend upon how much work he does to hold up the hands of those planning the Convention at Newark. It is not asked that each one work separately, but collectively, working in with the Branch Society as a whole. In this way the Convention will not be a one-man or ten-men affair, it will be the Convention of the American Electroplaters' Society for the members of the Society and their friends and guests. It is needless to say that what you do either personally or through your Branch, will be greatly appreciated.

What we wish is to have each Branch send in at least one paper. This should be upon some timely topic and one that will bring about discussion. We would like to have this paper by May the 1st, so that pre-prints can be made and one be in the hands of each delegate at the time the paper is read. In this way the presentation of papers will be greatly helped and there will be more time for active discussion. You fully realize that in nearly every case dis-

cussions bring out some important points that would otherwise be missed. You well know that there is a prize for such a paper, and should have the interests of your Branch so much at heart that you will go after this prize with every ounce of effort that you possess.

Any convention that does not have some other attraction would be a failure. The attraction that is better than that of flowers to the plater is an exhibit of the work that his fellow platers are doing. Can you not get together a branch exhibit, showing just what is being done along the lines of electroplating and finishing of metals? There is a prize for this also and last year it went to some Cadmium plated articles. This year it should go to another Branch, and your Branch should be the one that gets the prize.

If you will assist us in the way suggested above, you and we can make this Convention a success. This letter is being written at the suggestion of Mr. Horace Smith, the Chairman of the Committee, and every member of the Newark Branch and we extend to you an invitation to be present and enjoy the good things that are certain to be evident at this, the greatest Convention that this Society has ever held.

Do not lay this letter aside and say that you will take some action upon it in the near future. Get busy and start at once. Let the first thing you do be to write and tell us just what you expect to do and then keep your promise.

Yours fraternally,

GEORGE B. HOGABOOM,

Convention Committees

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EXPERIENCES OF A SILVER PLATER

By A. G. Reeve, Member of Bridgeport Branch

[A paper presented at the 13th annual convention of the American Electroplaters' Society at Montreal, Canada, July 1st, 1925. A chronological description indicating progress in preparatory cleansing and plating operations during the last 40 years.]

Plating consists of a series of operations or steps, like links in a chain. Each plating shop has problems all its own and does things in a somewhat different manner than any other. This is generally true even when comparing two or more establishments making the same line of goods —each has developed its own chain of operations or links, the details of which differ from those used in the other shops in no small degree; thus it is, that when Mr. A tells Mr. B that he has excellent success in using a certain acid in certain step in his process and B tries it and gets inferior results, it merely illustrates the fact that A uses a different style of chain than friend B, and Mr. A's link, although a very good one, does not work well in Mr. B's chain.

With this idea in mind, if any of the fellow members are able to adapt anything that follows in this paper so that it will fit into their chain and be of any value, the author will feel well repaid for having given it.

In 1880 it was customary in silver plating small articles of brass, copper or nickel-silver to cleanse them by boiling in strong caustic potash (12°) until thoroughly discolored, remove discoloration in cyanide dip, pass through the bright acid dip and then through the "Quick-Dip" (a very dilute solution of mercury) and thence to the silver strike and plating bath. This is a good process, but it best adapted for use on articles having a heavy plating which is well burnished before silver buffing, as some of the original lustre is lost before actual plating begins.

Inasmuch as there was no anode to maintain the metal content of the "Quick-Dip," volume production impoverished it rapidly and it was later omitted and two strikes operated instead of one as formerly, the first being maintained with about 3 dwts. silver and 9 oz. cyanide per gallon, while No. 2 strike had 6 dwts. silver and 7 oz. cyanide.

The brass goods made for gift enterprises and the premium trade received only a thin silver plating over a coating of nickel and were given a buff finish, hence it was necessary to preserve the lustre of the base, and this was done by removing the black buff dirt in soap solution—taking off the soap film and water-break by a short immersion in hot caustic potash about 7° Be'. Next they were passed through the cyanide dip and after thorough rinsing placed directly in the nickel bath.

By this method we dispensed with the "bright dip" or other acid, impairing the lustre of the brass base very little, and with the grease film completely removed and the goods thoroughly rinsed, the nickel plating adhered perfectly and the No. 2 strike was sufficient to make the silver hold firmly to this newly deposited nickel.

Later certain lines of inexpensive nickel-silver goods were nickel and silver plated in like manner, but on account of the nickel content of the base it is necessary to follow the cyanide dip by an acid dip of some kind (4 to 6° Be'). We used hydrochloric in preference to sulphuric. This HCl dip is doubly useful as it not only enables the nickeling to adhere tenaciously, but it also acts as an excellent test for the insidious water-break condition which is easily present when the oil or grease are not completely removed by the alkaline cleansing and a slippery soap film remains which may not at first be detected by a casual water- break test. In this case the CHl dip neutralizes the alkali that makes the grease film slippery, and by itself, the grease film, if present, makes a very noticeable water-break. After goods have passed through the HCl dip and are raised out of cold running water (free from alkaline rinsings) and are able to be held in the air under observation for 60 seconds without the appearance of any sign of water-break they are generally free from soap or grease and usually take plating well—other conditions also being favorable.

The cleansing and perfect preparation of work for plating, without diminution of lustre, is so important and surrounded by so much difficulty that we may reasonably expect it to constitute the greater part of the plater's work and worry, and inasmuch as nothing human is perfect, we

can appropriately consider preparation problems in **degrees of perfection.**

Fifty years ago before the advent of nickel plating, when nonferrous articles were all bright-dipped and "struck" with silver direct upon the base, we recognize that the platers were then receiving benefit from what is now known as the "combined cleaning and striking" principle and their work "got by," although their preliminary cleansing operations were quite primitive. The fact that the nickel bath is not alkaline, evolves very little hydrogen gas, and has no cleansing tendency, may account for the unfavorable reputation commercial nickeling had during infancy when its adherence was not too good, and also for the great improvements in cleansing operations which followed later.

A by-product resulting from refining whale oil is extensively used as a base for fish oil soaps variously called Platers' Compound, Cleaning Compound, etc., which is very useful in removing buff dirt without any hand scrubbing operations and no discoloration. If we add 50% as much borax as soap the solution works even better and should remove all the dirt in less than 30 minutes' boiling.

An inexpensive brown soap made from "cotton oil foots" also works well for this purpose, especially with the borax addition. This being a vegetable soap it is well to not boil it when the work has thick buff dirt as some of the heavier dirt clots become cooked on, and are thereafter only removed with difficulty. Some positive mechanical agitation other than boiling is desirable.

Another excellent soap is animal oil Laundry Soap Chips. These are convenient to use, are dry and therefore economical and the solutions work well when boiling. Laundry requirements are very exacting, hence this kind of soap is uniform and reliable and has but a minimum of free caustic, and it may be well to emphasize at this point the necessity of avoiding the use of caustic or carbonates of any kind in the soap solution as they only retard the soap action, impair the lustre and sometimes discolor the work; whereas, borax accelerates the action and produces no unfavorable accompaniments. Some may consider borax expensive, but when we consider what it actually does as

compared with inferior work, we believe the cost is amply justified.

Even on surplus stock that has previously been washed and stored, the removal of the grease or dried soap film is facilitated by five minutes' soak in hot soap solution.

In order to safely avoid inferior plating where large volume production is the regular daily program, it is well to discard the soap or other cleansing solution after it has done a definite amount of work, which has previously been determined by careful observation, rather than to make additions and discard the used solution later when inferior work has evidenced the necessity of renewal. In short, change the solution before bad work appears rather than after.

When the work is taken out of the soap, the film that causes water-break is easily removed, especially if rinsed in warm water. This does not congeal the soap and rinses more of it off, so that a very brief boiling in one of a number of different alkaline solutions of very moderate strength will be ample. The writer at one time used for this purpose 35 gallons of boiling water in which had been dissolved 4 to 6 ounces of caustic potash. When this was first made up in the morning it analyzed about 8% carbonate and at the end of the day over 15%. It removed water-break in one minute and the work could remain in it 20 minutes without harm if so desired. As the carbonate **increased,** the tendency to stain the work was greater, hence it was made fresh every morning. This was not used extensively for any considerable period of time and therefore it cannot be recommended for general practice.

The solutions more commonly used for this part of the cleansing often contain but a small percentage of caustic, together with sodium silicate, sodium carbonate, sodium aluminate and trisodium phosphate, in varrying proportions. These are stable and reliable and some combinations of them do the work with great rapidity.

The water-break having been effectually removed, the goods may now be dipped for a minute or two in a sodium cyanide dip to remove discoloration, if any, and after extremely thorough rinsing, BRASS GOODS may be placed

directly in the nickel bath. However, as previously stated, nickel silver goods require after the cyanide, a pickle (HCl preferred) to make the nickel adhere well.

Before we come to the pickle or 4% HCl dip, and when quality and 100% perfection are the primary objects we may follow the cyanide dip and rinse with a good electric cleaner. Our experience with electric cleaners since 1882 has taught us that it has its own peculiarities and limitations. It may operate as a benefit or a detriment, depending upon how we use it and what we endeavor to accomplish with it. It is certainly an excellent thing when rightly used to do work within its scope.

It is owing to the evolution of much hydrogen gas at the cathode that the desired results are accomplished and apparently the more gas per unit of surface the better and quicker is the work done. Therefore, let the work be strung up or racked as for plating, well spread out, and place in the electric cleaner kettle only a small portion at a time so that large volumes of current will pass directly from the inside of the kettle to all cathode surfaces with the least possible shadowing. With favorable solution at boiling temperature, 6 or 12 voilts from large buss-bars and ample generator capacity makes a surprising amount of gas and adds greatly to the violence of the ebullition. An electric contact of 3 or 4 seconds is usually sufficient, but in case of doubt do not let the goods remain in longer, but preferably rinse them off and give them a second immersion in the electric cleaner of like duration. This works better than one immersion of double the time.

Sodium carbonate with 10 or 20% of caustic added will make an excellent electric cleaner, the density required depending much upon current voltage available. The higher voltage and weaker solution is preferable because frequent renewals will be less expensive, and it is well to avoid letting the solution become impure with substances which may deposit upon the cathode, and the brief electric contacts are preferable for the same reason. It has sometimes been found good practice to make a fresh electric cleaner solution every day—in this case the tank was not a very large one. Trisodium phosphate makes an electric cleaner

solution that does very good work, but is, of course, more expensive.

When peeling plate is caused by electric cleaner cathode deposits, we believe it is due to long periods of electrolysis. We have seen brass goods become coated with a bright, clear deposit, resembling tin or lead in only a few seconds electric cleaning in an impure solution, and to which the nickel plating adhered so tenaciously that it could not be removed by any mechanical means. We believe that when only short electric contacts are made and immense volumes of gas thrown off, the reversal of current is unnecessary.

Scientists tell us that silver is one of the easiest metals there is to deposit, and those who do silver plating are undoubtedy thankful that this is so because there is trouble a plenty, anyway, at least in connection with large volume production.

Chemists have often proved the truth of their contention by showing us the "whys and wherefores" of things that have been mysterious. It has been our experience that while an inferior silver plate quickly throws suspicion upon the silver bath, in a large majority of cases when the real cause of the trouble is finally located, it is found elsewhere —perhaps in the strikes or nickel bath, but most frequently in one or more of the preparatory cleansing operations.

The ingredients of the silver bath may vary greatly and yet always be very efficient in depositing 2½ dwts. per ampere-hour and dissolving a like amount from the anodes. Some silver operators favor high cyanide with moderate metal content, while others like the reverse. The chief determining factor as to the proportions of these and the othr ingredients of the bath will be, of course, the exact character of deposit best suited to the individual requirements of the class of work being plated. Some establishments maintain 3 or 4 different kinds of cyanide silver baths.

Addition agents that brighten the deposits permit the use of higher current densities. The writer believes, however, that when high current densities are used, the distribution of the deposited metal will not be quite as uni-

form as with lower current density, provided, of course, that the inequality of distances between anode and cathode, and the other influential factors, are the same in both cases.

The early desire and effort of the founders of our company to make only goods of superior quality has steadfastly continued through to the present day and consequently the factory management has generously supported the platers in their ambitious endeavors to improve the product.

A COMPARISON OF AMMONIUM CHLORIDE AND SODIUM SULPHATE NICKEL BATHS FOR BARREL PLATING

By B. A. H., Member Waterbury Branch

In the report of the Joint Conference with the staff of the section of electrodeposition of the Bureau of Standards as published in the MONTHLY REVIEW for November, 1924, a brief outline of some preliminary work on the "Nickel Plating of Zinc and Die Castings" was given by Mr. M. R. Thompson. Previous to and since this outline was published, considerable experimenting has been done as to the adaptability of such a solution for the successful barrel plating of small articles of brass and steel. This paper will be confined to experiments covering a period of approximately six months. It has been found that Mr. Thompson's solution, with few moderations, can be used successsfully for mechanical barrel plating, and in most respects proves superior to the regular Ammonium Chloride Bath.

The Composition of the Baths used are as follows:

Sodium Sulphate Bath

	Oz. per gal.
Nickel Sulphate (Single Salts) $NiSo_4$—$7H_2O$	19
Boric Acid H_3BO_3	2.1
Ammonium Chrolide NH_4Cl	1.8
Sodium Sulphate (Crystals) (Glaubers' Salt)	64

Ammonium Chloride Bath

	Oz. per gal.
Nickel Sulphate (Single Salts) $NiSO_4$ $7H_2O$	15
Ammonium Chloride NH_4Cl	7
Boric Acid H_3 BO_3	3½

The first difficulty encountered was the mechanical loss due to the density of the sulphate bath. It was found that the sulphate bath needed replenishing three times a week with stock solution, whreas the Chloride Bath needed replenishing but once a week. This condition had to be overcome at the start because of this large amount of waste. A lower concentration of Sodium Sulphate and Nickel Sulphate proved to solve this difficulty and brought the mechanical loss the same as the Ammonium Chloride Solution.

The composition of the diluted bath is as follows:

	Oz. per gal.
Nickel Sulphate	13
Boric Acid	2
NH_4Cl	1.8
Sodium Sulphate	16

An accurate record of temperatures, nickel content and ph values were kept daily. Each solution was operated continually for ten hours each day. Owing to the many varieties of small articles plated and their irregular shapes, it was found impossible to give a definite current density. Seven of nine volts were used, depending on the character of the work. (It might be well to mention at this point that both tanks were always loaded with the same type of work.) An increase in temperature has a tendency to decrease the throwing power. The temperatures in both solutions were kept as near alike as possible. A temperature above 33 C 91.4 F with the sulphate bath, began to show a dark deposit, while the NH_4Cl solution could be run as high as 35° C 95 F before giving trouble. It was found that at the end of each day's run the NH_4Cl bath, temperature was 2° C higher than the Sulphate bats. The temperature of the sulphate bath remained almost constant. This is due to the better conductivity of the sulphate bath.

The ph. values proved a very important factor. The sulphate bath could be operated at a lower ph. value (higher acidity) than the NH_4Cl. The ph. was run to 5.6

and as high as 6.2 with good results. The NH_4Cl bath was kept between ph. 5.7 and 6.0. The ph. values had to be watched very closely, due to the great amount of alkali introduced from cleaning solutions. This condition necessitated the addition of small amounts of H_2SO_4 about three times a week. This was added after the last round and the solution was mixed thoroughly and left to stand over night. The Sterlin Wedge Comparator was used for the ph. determinations. No accurate method was used for the determination of throwing power. It was found, however, that work required much less time to cover in the sulphate bath, and upon examination of deeply recessed articles the deposit was found to be bright and uniform throughout. In the Ammonium Chloride Bath the same articles showed a bright deposit in the recesses, while the outer portions showed a heavy dull deposit. This condition favored the sulphate bath, both for speed of deposit and time saved in the subsequent bright rolling operation. High current densities could be used in the sulphate bath with no signs of burning the work, while in the Ammonium Chloride Bath this condition had to be watched very carefully.

All the results obtained seem to favor the sulphate bath, both for economy and ease of operation. There are perhaps difficulties unforseen that may be encountered. There is still room for much more study and experimenting.

In summarizing we find:

1. The cost of the sulphate bath is approximately .10 per gal., while the ammonium chloride bath is .16 per gal.

2. 50% of the time is saved in the bright rolling operation after nickeling.

3. A saving in power, due to the high conductivity of the sulphate bath. The same current used for plating in the Ammonium Chloride bath could be used in the sulphate bath with less voltage, i. e., if it took 9 volts to plate at 150 amps. in the NH_4Cl bath, it would take between 6 and 7 volts to plate at 150 amps. in the sulphate bath.

4. A saving of 25% on the time of deposit is saved in the sulphate bath owing to greater conductivity and better distribution of current.

SULPHUR AS AN OXIDIZING AGENT

Address delivered by Mr. Wilfred S. McKeon at the 11th Anniversary Educational Meeting and Banquet of the Philadelphia Branch, A. E. S., November 21, 1925

Mr. Chairman, distinguished guests, fellow members of the A. E. S.:

This is the first speech I have ever made. You are going to remember it. A record will be established by it. My talk will stand out on your program in at least one unique particular. In addition to its frankness it will be the shortest of its kind ever likely delivered at any such educational gathering.

"The third time is a charm," they say. This is the third definite attempt I have made to attend this annual educational meeting and banquet of the Philadelphia Branch. Two years ago in driving over from Greensburg, instead of taking a curve in the Blue Ridge Mountains this way as it should have been taken, my car decided to take a short cut over that way instead. This landed me in the Chambersburg Hospital for over three months, and at home in bed for two months more. I am not quite over it yet. The doctors say I won't be for a couple of years.

Last year I bought a building on the day of this affair, and for that reason I couldn't come. But here I am the third time.

The American Electroplaters' Society, as we all know, is an organized body of fellows for mutual education. Our membership is made up of those who are considerate enough to help a fellow member and who are looking for education themselves.

You are therefore doubtless looking for education of some sort on the matter of oxidized finshes or on sulphur as an oxidizing agent.

Primarily all finishing may be said to be for the purpose of preventing rust and corrosion generally. The beautifying effects of finishes may be said to be secondary thereto.

I have little to add to your present fund of knowledge about the mechanics of oxidizing. This is so simple of accomplishment that an almost unskilled workman can secure a great many of the different oxidized finishes.

You will no doubt be interested in the different formulae for producing antique or oxidized finishes.

Only three I will mention here this afternoon. They are principally directed to oxidizing brass as follows: These statements are easily checked up. Thus I will tell you now where each formula is actually in use.

The Keystone Friction Hinge Co. of Williamsport, Pa., have been for years successfully using the following directions for oxidizing direct on brass plated steel: Dip work in hot Natrolin metal cleaner solution. Immerse until required shade is produced in oxidizing solution made of 3 ozs. "Liquid Sulphur" to 4 gallons boiling water. Then dip into cold, then into hot water. Dry off in sawdust.

A Bidet & Son of Williamsport, Pa., have been for years successfully using the following directions for oxidizing solid brass: Immerse work in oxidizing solution made of one-fourth ounce "Liquid Sulphur" to gallon cold water. Rinse in clean, cold water. Dip in solution made of about one ounce copper sulphate to the gallon of water, then back into cold water. Repeat until desired color appears. Do not dip into hot water at any time. When desired color is reached, dry off in luke warm water. If quicker action is desired, substitute a weak muriatic pickle instead of copper sulphate solution or else use muriatic acid in addition thereto.

Mr. Thos. A. Gardner of Rutherford, N. J., is now using the following directions for oxidizing aluminum die castings any shade from lightest bronze to darkest bronze: Clean work in solution of Natrolin metal cleaner No. 5 (2 ozs. to the gallon with current). Scratch brush with pumice. Wash again in cleaner. Brass plate direct for one to one and a quarter hours. Rinse in clear cold water, then in hot water. brush with pumice and water. Dip alternately in the following dips until desired shade is reached: Oxidizing solution made with 2 ozs. "Liquid Sulphur" to 10 gallons water. Acid dip made with 8 ozs. sulphuric acid, 2 ozs. nitric acid and 10 gallons water. Rinse in clear cold water. Be sure to always rinse in cold water after acid dip. Scratch brush dry. Lacquer.

The one item which might be well worth reminding you of is that oxidizing is no doubt the most cheaply produced

finish. It may be a good thought to suggest to you men who are in charge of the production of finishes this idea of the cheapness of producing oxidized finishes.

Really a very wide range of shades of finishes may be secured by oxidizing with sulphur on silver, copper and even direct on brass. This is accomplished by varying the strength of solution, number of times immersed and duration of immersions. To this is to be added, of course, the use of various alternate dips as additional cleansing, counteracting or coloring agents, likewise different forms of relieving wheels and relieving materials.

For me an associate member to presume to tell you active members of the Society how to go about the actual mechanics of oxidizing would be, in my opinion, presumption of the most brazen type.

The total amount of money spent on the continent today for oxidized finishes is probably less than spent for any other finish of metal.

The securing of this finish is comparatively easy and nearly fool proof.

You have my heart-felt thanks for your courtesy in asking me to thus greet you and for your interest in listening to these few plain truths and this friendly greeting.

BRANCH NEWS

Chicago Branch

Regular monthly meeting Chicago Branch, A. E. S., held January 9, 1926, at the Atlantic Hotel.

Meeting called to order with Vice-President Jacob Hay presiding and a very good attendance.

Mr. R. J. Hazucha, Chairman Membership Drive Committee, reported that they intended to carry on this work until every eligible applicant within their reach was a member of this Society.

Mr. E. Lamoureux, Chairman of Banquet Committee, reported that at a special committee meeting held in the afternoon before our regular meeting, several of the members present had donated prizes which will be raffled off as an added attraction for the ladies at the banquet.

Mr. Cyril Kocour gave us a report of the meeting of the American Chemical Society who had the subject zinc plate on tin plate.

Mr. O. E. Sevis had some samples of steel parts charomium plated, but owing to the late hour this was laid over to our next meeting.

Dayton Branch

The Dayton Branch held its regular meeting January 2 at the Y. M. C. A., with President Harter presiding. After our regular order of business a discussion was started on tin plating, which lasted until meeting adjourned.

Cleveland Branch

The Cleveland Branch of the A. E. S. met at the Hotel Winton on the above date for their regular January business meeting. We had a very interesting discussion on Pickling and preparing work for plating. The attendance was fairly good. Adjournment was called for at 10 P. M.

Pittsburgh Branch

We did not hold our regular meeting on January 2 on account of the holidays, so called the meeting for the 9th instead. Regular business was taken care of, and the application of Robert M. Garland, West Pittsburgh, Pa., was presented for membership as an associate. Those present talked over the question of new members, and it seems that some few platers are not yet members. Every effort will be made to secure them.

Pittsburgh is not a plating town in the sense that many of the other large cities are, and we have gone over the district very carefully in the past.

Philadelphia Branch

Regular monthly meeting of Philadelphia Branch, A. E. S., was held January8 and was well attended.

Mr. K. Massacote of New York Branch, who is now located in Philadelphia, paid us a visit and was warmly welcomed and invited to meet with us again.

Owing to illness of Mr. Graham he was unable to attend this meeting. He has our best wishes for a speedy recovery. A general discussion on various questions kept the members interested until 10:30.

The following letter was written to President Gehling of Philadelphia Branch:

Mr. President:

For the past year we have been going through a lecture course under Mr. A. K. Graham, which, to me, has been really wonderful. I've been wondering if the members of the branch realized how valuable this information is, have they put to practical use any of the knowledge gained, and if it has come up to or surpassed their expectations.

Last summer I secured a small apparatus and started to put into use the information gathered by attending these meetings. It has been highly gratifying to know that I was doing something and knew what, instead of guessing.

I have reached a point now where I can chemically control the actions of my solution, and know for a certainty the acidity and metal content and can feel assured that each batch of work is equal to another.

I can now save on the consumption of salts by knowing just how many pounds are required. I used to work on a theory I thought was logical, that for a certain amount of work produced a percentage of metal was reduced and must be replaced. Chemical analysis disproves this theory, and we find you do not have to add salts as often as we thought was necessary. If you haven't tried any of this stuff, give it a hitch and you will find it both useful and entertaining.

I would not miss a meeting if I had to travel twice the distance I have to travel now, and I think I am well paid for the trip from Wilmington to Philadelphia.

Yours truly,

S. T. LUMBECK,
3304 Washington St.,
Wilmington, Del.

Toronto Branch

The live wires were present at our December 28 meeting, and we enjoyed a real Yuletide meeting. We had a variety of topics to discuss, and the president, Mr. Colin Turner, had to use the gavel to stop one argument. It was decided to hold a social evening on January 25, and have the "wimmen folks" with us.

Subject for discussion was: "Hard Versus Soft Deposits," and though briefly discussed the opinions appeared to favor soft deposits.

Question—What causes silver anode to turn black, dissolve away, yet remain black?

Answer—Impurities in the silver anodes.

Question—What will cause silver to chip off Britania metal? Surface chemically clean withstands burnishing, etc. Work wired, chipping occurs with dull or bright deposit.

Answer—Striking solution declared at fault or manner of using it. Solution too dense and current excessive. If strike is near correct chipping should not occur.

Methods for cleaning spot welded steel were given some consideration. Much information is required on this subject before it is finished. Send us your method, it will be appreciated.

New York Branch

The December meetings of the New York Branch, A. E. S., were well attended. The Branch is doing its share in the membership drive conducted by the A. E. S., having put through ten new applicants in these last two meetings.

The Banquet Committee is progressing rapidly and have arranged an excellent slate of able speakers for the afternoon session of the banquet, which are as follows: Dr. Skowranski of Raritan Copper Company, accompanied by moving picture; Dr. Blum of Bureau of Standards; Mr. George Backus of Munning Loeb Company; Mrs. Chas. Proctor, Founder of Society.

Detroit Branch

Regular meeting held January 8, 1926, at Detroit Testing Laboratories, President C. Cunningham presiding.

It was unanimously voted to retain membership in the Associated Technical Societies of Detroit on a promise that the Councilmen will report more frequently hereafter.

Three applicants were elected and some red-hot applicants are in sight for the next meeting.

It was voted to call the attention of the members to the Technical Session held the third Friday of the month in preference to the regular business meeting held the first Friday of each month.

Professor B. Lewis being handicapped by lack of space on his slate, was instructed to purchase a suitable blackboard. He was presented with a copy of Blum & Hogaboom's book, in appreciation of his untiring efforts for the technical sessions.

Officers who are delinquent in attending meetings are in danger of losing their positions with its rewards?

We have twelve delinquent members who are ten months behind in their dues. They will be given another chance.

Under the good of the order the benefits of single and double nickel salts used separately or mixed were discussed.

The "Mixed Salts" won this bout on the strength of some beautiful specimens of pre-war nickel-plated ware which are holding their color and lustre to this day, which is more than we can say of our more modern nickleware.

The discussion would have gone on indefinitely, so we called it a day and retired to inspect "the stunts" which yours truly promised.

Our worthy host, Mr. Jameson, of the Detroit Testing Laboratory, then took charge of the "gang" and minutely explained the different stunts used in a modern laboratory, viz.:

The mysteries of the evolution of coal to heat and power.

A plating plant equipped with platinum anodes only.

Nickel boats that are burned for their cargoes.

Numerous methods of Titration, evaporation, filteration, condensation and distillation. Envious eyes were cast on the "Liebig's Condensors," and many tell-tale copper coils will be dispensed with hereafter.

The physical and electrical equipment were next inspected and commented on, and many questions were asked and answered by Messrs. Jameson and Lewis.

The organic section was next inspected and everything was serene until the "C_2-H_5-OH Dept" was reached, then, as if by magic, everyone complained of colds, chills, cramps, cholic, etc., but it was fruitless—nothing doing! The Secretary did, however, get his hands around one bottle, but one sniff at its contents was sufficient.

Luckily for Mr. Volstead that he wasn't around that night as we finished the night battling a snowstorm home.

Bridgeport Branch

The January meeting of this Branch was held on the 8th of the month, President William Flaherty presiding. The transfer of Mr. Fred Norgren from the Detroit Branch was accepted. President Flaherty suggested that we start a question box in an effort to bring out interesting topics to talk on and to give as much help as possible to the members who have troublesome problems to hand. Accordingly a motion was made and seconded.

The question of brass versus copper anodes in barrel brass solutions was discussed. The majority of the members favored the brass, while a few thought well of the copper where there was not a steady run of work and where the solutions were not in use for intervals of three or four days. Contending that if the solution needed any of the two metals to revive it the lacking element must be zinc. For solutions that are worked steadily, however, it is conceded that there was no doubt as to the superiority of the brass anodes.

Boston Branch

Boston Branch met on Friday, the 8th, instead of the 1st, this month, with President Talamona in the chair. After the regular order of business our President gave a very interesting talk on the plating of jewelry work in his place of business, explaining everything from start to finish. A vote of thanks was given him, and he will give another talk later. Mr. Lee told of the business conditions in and around Boston, stating that there isn't much doing just now, but is bound to pick up soon. Discussion took place and the meeting adjourned at 10:30 p. m.

Waterbury Branch

"An interesting meeting," was the universal comment of those that attended the recent session of Waterbury Branch. The evening was devoted to discussion of problems in the metal-cleaning line. An interesting and instructive paper on "Cleaners" was read by George E. Hopkins. Representatives from many of the other Branches were present, and all united in complimenting Mr. Hopkins on his excellent effort. The lecturer announced that the next subject to be brought up for discussion was the "Use and Make-Up of Pure Nickel Anodes." A letter was received from the Near East Relief Committee acknowledging the receipt of a substantial donation from the local Branch.

Application for membership (active) was received from Cornelius L. Fischer of the Seth Thomas Clock Company.

ELECTED TO MEMBERSHIP

Toronto Branch

C. G. Colvill.....58½ Boultbee Ave., Toronto, Canada
H. W. Cannon .....67 Wilson Ave., Toronto, Canada
W. E. MacGillivray..c|o Shaw & Mason, Ltd., Sydney, Nova Scotia, Can.
Victor J. Punter .....25 Leonard St., Niagara Falls, Ontario
Thomas Ward, Active .....529 Dirch St., Camden, N. J.
L. MacLaren, Active .....Marshalton P. O., Delaware

St. Louis Branch

J. D. Waldron, Assoc. .....4323 Washington Ave., St. Louis, Mo.
A. Coerver, Active .....4218 Lee Ave., St. Louis, Mo.
A. G. Musick, Active .....10 North 11th St., St. Louis, Mo.
F. W. Lafser, Active .....5016 Alaska Ave., St. Louis, Mo.
H. A. Doerr, Active .....2729 St. Louis Ave., St. Louis, Mo.

Detroit Branch

J. McClusky, Active....c|o Alloy Steel Spring & Axle Co., Jackson, Mich.
Hagop Joyarian, Active .....7540 Jos-Campau Ave., Detroit, Mich.
James Lennox, Active .....5840 Maxwell Ave., Detroit, Mich.

Rochester Branch

C. F. Guy, Active .....320 No. Jefferson St., Rochester, N. Y.

Chicago Branch

George Skzydlewski, Active .....3331 No. Monticello Ave., Chicago, Ill.
Oscar G. Smidel, Associate (reinstated)
c|o Chas. F. L. Hommedieu Co., 26 So. Clinton St., Chicago, Ill.
Mark Warren Eichelberger, Assoc....7427 So. Shore Drive, Chicago, Ill.
Fred G. Leal, Active .....1805 So. 17th Ave., Maywood, Ill.
George Vlasatay, Active .....1346 So. Tripp Ave., Chicago, Ill.
Wm. F. Hasback, Active .....2055 W. Adams St., Chicago, Ill
Herbert F. Haake, Active .....3763 Wilton Ave., Chicago, Ill.
John M. Bigalke, Active .....517 Fairfield Ave., Elmhurst, Ill.
James T. Markett, Active .....148 No. 34th Ave., Melrose Park, Ill.
Peter Young, Active .....6413 No. Clark St., Chicago, Ill.
Gustaf Silbert, Active .....5448 No. Ashland Ave., Chicago, Ill.
Albert C. Pramschiefer, Active .....3434 Melrose St., Chicago, Ill.
Jacob Mintz, Active .....3441 W. 12th Place, Chicago, Ill.
James J. Jones, Active .....422 No. Foley Ave., Freeport, Ill.

Milwaukee Branch

O. N. Ropitzke, Active .....1623 Woodrom Ave., Racine, Wis.
M. G. Toeppe .....1823 W. 6th St., Racine, Wis.

RESIGNED

Rochester Branch

E. E. Fitch .....250 Auburn Ave., Buffalo, N. Y.

APPLICATIONS FOR MEMBERSHIP

Chicago Branch

Jack Duncan, Active .....1915 Wolfram St., Chicago, Ill.
David E. Greenblatt, Active .....3000 Sunnyside Ave., Chicago, Ill.
Emil E. Dretske, Active .....206 So. West St., Chicago, Ill.
Thomas J. Kennedy, Active .....1633 No. Austin Ave., Chicago, Ill.
Arthur Broher, Active .....2651 Orchard St., Chicago, Ill
Elmore M. Relitz, Active .....4056 No. Troy St., Chicago, Ill.

St. Louis Branch

Ralph A. Crowe, Active .....913 Vermont St., Hamibal, Mo.
Herman Schachner, Active .....1919 Withnell Ave., St. Louis, Mo.

Pittsburgh Branch

Robert M. Garland .....West Pittsburgh, Pa.

Philadelphia Branch

W. K. Schofield, Assoc. .....5843 N. Lawrence St., Philadelphia

Toroton Branch

David Rowe, Active .....Orillia, Ontario
Jacob Wilson, Active .....Niagara Falls, Ontario
Daniel Stiff, Active .....Toronto, Ontario

REINSTATED

St. Louis Branch

R. J. Smith .....2514 East Milton Ave., Overland, Mo.

Dayton Branch

W. H. Taylor .....20 Edmund St., Dayton, Ohio
W. A. Lambert, Active .....281 Grand Ave., Johnson City, N. Y.

BOSTON

Regular meetings are held first Friday of each month, at 8 p. m., at the Boston Platers' Supply Co., 202 Friend St., Boston. Secretary, A. W. Garrett, 89 Alexander St., Dorchester, Mass.

BRIDGEPORT

Meets first and third Friday of each month at 62 Cannon St., Room 17, Bridgeport, Conn. Secretary R. J. O'Connor, 1228 Noble Ave., Bridgeport, Conn.

CHICAGO

Meets second Saturday of each month, at 8 p. m., Atlantic Hotel, 316 S. Clark St. Secretary, Robt. Meyers, 2210 Wilson Ave., Chicago, Ill.

CINCINNATI

Meets every Thursday, 7:30 p. m., at Vocational Training School, Spring and Liberty St. Secretary, W. J. Husing, 729 McMakin Ave., Cincinnati, Ohio.

CLEVELAND

Meets first Saturday of each month at Hotel Winton. Secretary, H. S. Kneeland, 3924 Clybourne Ave., Cleveland, Ohio.

HARTFORD-CONN. VALLEY

Meets on the fourth Monday of each month at 747 Main St., Hartford, Conn. Secretary, Tennant Elwin, 1145 Boulevard, West Hartford, Conn.

DAYTON

Meets first Saturday of each month at the Y. M. C. A., Dayton, Ohio. Secretary, Albert Bates, Box 34, Vandalia, Ohio.

DETROIT

Meets the first and third Friday of each month at the Detroit Testing Laboratory, 554 Bagley Ave., Detroit. Secretary, Geo. Kutxen, 1087 W. State Fair Ave., Detroit, Mich.

GRAND RAPIDS

Meets on the second Wednesday of each month at the Vocational High School, 129 Bostwick Ave., N. E. Secretary, John Raven, 1139 Emerald Ave., Grand Rapids, Mich.

INDIANAPOLIS

Meets the second Saturday of each month at Hotel Denison. Secretary, Louis Mertz, 1725 Union St., Indianapolis, Ind.

MILWAUKEE

Meets second and fourth Thursdays of each month at Lipps Hall, 321 3d St. Secretary, Roy Hunt, 1314 Atkinson Ave., Milwaukee, Wis.

MONTREAL

Meets every Friday at 84 Craig St. West. Secretary, John H. Feelay, 411 Aylmer St., Quebec, Canada.

NEWARK

Meets first and third Fridays of each month at Hotel St. Francis, 22-24 E. Park St., Newark, N. J., at 8 p. m. Secretary, F. W. Matts, 55 Concord Ave., Hilton, N. J.

NEW YORK

Meets every second and fourth Fridays of each month in the World Building, Park Row, New York City, N. Y. Secretary, J. E. Sterling, 468 Grand Ave., Long Island City, N. Y.

PHILADELPHIA

Meets first Friday of each month in the Harrison Laboratory Building, University of Pennsylvania, 34th and Spruce Sts. Secretary, P. Uhl, 2432 North 29th St., Philadelphia, Pa.

PITTSBURGH

Meets first Saturday of each month at 8 p. m., at United States Bureau of Mines Bldg., Forbes St. Secretary, S. E. Hedden, 227 Fifth St., Aspinwall, Pa.

PROVIDENCE-ATTLEBORO

Meets first and third Thursday of each month at 184 Washington St., Room 308, Providence, R. I. Secretary, Robert Crook, 185 County St., Attleboro, Mass.

READING

Meets on the second Tuesday of each month. Secretary, William M. Fisher, 654 Gordon St., Reading Pa.

ROCHESTER

Meets every second and fourth Saturday of each month at the Powers Hotel. C. A. Reama, Secretary, 512 Lyell Ave., Rochester, N. Y.

ST. LOUIS

Meets first Tuesday of each month at Barr Branch Library, corner Jefferson and Lafayete Sts. Secretary, F. P. Menniges, 3205 A Arsenal St., St. Louis.

TOLEDA

Meets first Thursday of each month at Toledo University Science Building, Electro-Platers' Room, corner Cherry and Page Sts. Secretary, W. W. Weiker, 411 3d St., Toledo, Ohio.

TORONTO

Meets fourth Monday of each month at Canadian Foresters' Hall, 22 College St., Room No. 2. Walter L. Barrows, 628 Dover Court Road, Toronto, Ontario, Canada.

WATERBURY

Meets every second and fourth Friday of each month. Secretary, Wm. F. Guilfoile, 14 Oakland Ave., Waterbury, Conn.

FOURTEENTH
ANNUAL BANQUET

ROCHESTER BRANCH A. E. S.

FEBRUARY 13, 1926

Powers Hotel—Dinner at 6:00 P. M.

After which there will be an entertainment as usual, consisting of toe dancing, spanish dancing and others. The main event being a plater's song, a parody on "It Aint Gonna Rain No Mo," to be sung by the members of the Rochester Branch. After the entertainment there will be dancing for all until 12:00 o'clock.

Out of town members of the Rochester Branch are especially invited to attend.

For further information write C. A. Reama, Sec'y, 512 Lyell Avenue, Rochester, N. Y.

TICKETS, $3.00

A cordial invitation is extended to you and your friends to attend the

SIXTEENTH ANNUAL
FOUNDER'S DAY AND BANQUET

of the

New York Branch, American Electroplaters' Society

to be held at the Aldine Club, 200 Fifth Ave., Cor. 23rd St., N.Y.C.

SATURDAY, FEBRUARY 20, 1926

Afternoon Session 3 P. M.—Papers and Addresses by prominent members of the trade

Banquet at 7 P. M. - - - Dancing after the Banquet

Bring the ladies and have a pleasant afternoon and evening. Don't miss the Movies of the Mining and Electro Refining of Metals.